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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,455	02/06/2004	Lie-Fen Shyur	08919-111001 / 14A-890529	3601
69713 7590 12/31/2007 OCCHIUTI ROHLICEK & TSAO, LLP 10 FAWCETT STREET CAMBRIDGE, MA 02138			EXAMINER PAK, YONG D	
			ART UNIT 1652	PAPER NUMBER
			MAIL DATE 12/31/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/773,455	Applicant(s) SHYUR ET AL.	
	Examiner Yong D. Pak	Art Unit 1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 2-4, 6, 7, 9-11 and 13-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 8 and 29 is/are rejected.
- 7) ☒ Claim(s) 5 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This application is a continuation in part of 09/654,652, now issued as US Patent No. 7,037,696.

The amendment filed on October 9, 2007, amending claim 1 and adding claim 29, has been entered.

Claims 1-29 are pending. Claims 2-4, 6-7, 9-11 and 13-28 are withdrawn.
Claims 1, 5, 8, 12 and 29 are under consideration.

Specification

The use of the trademarks, for example "BIOSOFT" on page 9, has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks. Applicant's cooperation is requested in reviewing the specification for additional trademarks that may be present in the specification and making the appropriate.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 29 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 29 recites the phrase "SEQ ID NO:3 or 4". The metes and bounds of the phrase are not clear in the context of the claims. Claim 29 depends from claim 1, which is drawn to a polypeptide comprising catalytic domains of SEQ ID NO:1. Therefore, it is not clear to the Examiner how such a polypeptide can comprise of SEQ ID NO:3 or 4. Examiner requests clarification of the above phrase.

Claim Rejections - 35 USC § 112

Withdrawn Rejections

In view of the amendment of claim 1, the rejection of claims 1 and 8 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement, has been **withdrawn**.

In view of the amendment of claim 1, the rejection of claims 1 and 8 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement, has been **withdrawn**.

New Rejection

Claims 1, 8 and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 8 and 29 are drawn to polypeptides comprising the enzymatic catalytic domains (SEQ ID NO:3 and 4) of 1,3-1,4 β -D-glucanase of SEQ ID NO:1 and excluding 78 carboxyl amino acids of SEQ ID NO:1, wherein said polypeptide has higher enzymatic activity that the wild type of 1,3-1,4 β -D-glucanase of SEQ ID NO:1. Such polypeptides can comprise of amino acids 1-266 and amino acids 267, 268, 269, 270 and/or 271. However, such polypeptides not described in the application as originally filed nor in any of its parent applications. The specification as filed contains disclosure of only a truncated polypeptide of SEQ ID NO:1 consisting of amino acids 24 to 271 of SEQ ID NO:1 (which excludes 78 carboxyl amino acids of SEQ ID NO:1), wherein said polypeptide has higher enzymatic activity that the wild type of 1,3-1,4 β -D-glucanase of SEQ ID NO:1. Therefore, claims 1, 8 and 29 contain new matter.

Given this lack of description of the above polypeptides, the specification fails to sufficiently describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize that applicants were in possession of the inventions of claims 1, 8 and 29 at the time of filing of the instant application.

Claim Rejections - 35 USC § 102

Claims 1 and 8 were rejected under 35 U.S.C. 102(b) as being anticipated by Teather et al.

In view of the fact that (A) Teather et al. do not teach a polypeptide comprising the catalytic domains of SEQ ID NO:1 and excluding the carboxyl terminal 78 amino acids of SEQ ID NO:1, and (B) Claim 1, as amended, is now drawn to a polypeptide comprising the catalytic domains of SEQ ID NO:1 and excluding the carboxyl terminal 78 amino acids of SEQ ID NO:1, the rejection has been **withdrawn**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teather et al.

Claims 1 and 8 are drawn to polypeptides comprising the enzymatic catalytic domains of 1,3-1,4 β -D-glucanase of SEQ ID NO:1 and excluding 78 carboxyl amino acids of SEQ ID NO:1, wherein said polypeptide has higher enzymatic activity than the wild type of 1,3-1,4 β -D-glucanase of SEQ ID NO:1.

Teather et al. (cited on form PTO-1449) discloses a wild type 1,3-1,4 β -D-glucanase having 100% sequence identity to SEQ ID NO:1 of the instant invention (Figure 1 on page 3839). Teather et al. discloses that the five repeating sequence (PXSSSS), which is found in many endoglucanases, may participate in stabilizing the active conformation of the protein but do not participate directly either in forming the substrate-binding site or in catalysis (bottom of page 3840). With this teaching at hand, one having ordinary skill in the art would have recognized to carry out deletion analysis of the C-terminal region of the enzyme to define the essential C-terminal amino acids necessary for enzymatic activity. Such mutagenic technique is known in the art and is also taught by Teather et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to systematically delete amino acid residues at the C-terminal region of the 1,3-1,4 β -D-glucanase of Teather et al. One of ordinary skill in the art would have been motivated to delete C-terminal amino acids in order to determine those sequences that are essential for enzymatic activity. One of ordinary skill in the art would have had a reasonable expectation of success since mutagenesis

is a well known technique in the art. The property of having higher enzymatic activity compared to the wild type enzyme would flow naturally upon deleting 78 C-terminal residues and therefore said property is inherent to a polypeptide wherein its 78 C-terminal residues have been removed.

Therefore, the reference of Teather et al. render claims 1 and 8 *prima facie* obvious to those skilled in the art.

Allowable Subject Matter

Claims 5 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Claims 1 and 8 are rejected.

Claims 5 and 12 are objected.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Pak whose telephone number is 571-272-0935. The examiner can normally be reached 6:30 A.M. to 5:00 P.M. Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



Yong D. Pak
Patent Examiner 1652